

- 8 -

Remarks

This application has been reviewed in light of the Office Action of June 28, 2005. Claims 1-26 are pending, and all claims are rejected. In response, claims 1, 17, and 22 are amended, and the following remarks are submitted. Reconsideration of this application, as amended, is requested.

Applicant calls to the Examiner's attention that claims 13 and 21 are not included in a statement of any rejection, even though para. 6 of the Office Action Summary indicates that they are rejected.

Claims 22-26 are rejected under 35 USC 112. Applicant traverses this ground of rejection.

The basis of the rejection is the language "but not to cool the hot region" in claim 22. Support for this limitation is found in para. [0012] and [0036] of the present application. Para. [0012] states,

"The obscuring agent does not act in the manner of a quench to cool the infrared source. For example, it has been previously proposed to add water or other coolant to the combustion gas stream of a gas turbine engine before it flows out of the engine as the exhaust gas stream. This approach reduces the thermodynamic efficiency of the engine and requires such a large amount of coolant that the aircraft operation may be economically infeasible. The obscuring agent instead acts to block the infrared energy in the line of sight between its source and the external viewing location."

Para. [0036] states,

- 9 -

"The obscuring agent 46 is not initially mixed with the hot exhaust plume 44 so as to cool the hot exhaust plume 44 to decrease its infrared emissions directly. Most aircraft use turbofan engines, and the bypass air is already mixed with the exhaust gas of the gas turbine engine core to achieve significant cooling. Any amount of cooling effect that the present approach could achieve would be relatively small in comparison. Instead, the present approach dispenses the obscuring agent 46 so as to flow between the hot exhaust plume 44 and the most-probable external viewing locations 56. There is some incidental mixing of the obscuring agent 46 with the hot exhaust plume 44 due to the vortices behind the engines, but that mixing typically occurs so far behind the aircraft 30 that the hot exhaust plume 44 has naturally cooled so that it is no longer a significant infrared emitter. The primary mechanism of the present approach is obscuring, not cooling, the infrared-emitting hot regions 58 associated with the aircraft 30."

Thermodynamics does not require that the plume transfer heat to the obscuring agent until equilibrium is reached, for two reasons. First, in this embodiment the plume is not in contact with the obscuring agent. Second, kinetics is a more-significant factor than thermodynamics. The plume and the obscuring agent are streaming behind the aircraft. There is no time for thermodynamic equilibrium to be reached.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 1, 2, 4, 6, 14, 15, 16, 22, 23, 24, and 26 are rejected under 35 USC 102 as anticipated by Herlik US Patent 5,549,259. Applicant traverses this ground of rejection of the amended claims.

The following principle of law applies to sec. 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the

- 10 -

claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

Thus, identifying a single element of the claim which is not disclosed in the reference is sufficient to overcome a Sec. 102 rejection.

Claim 1 recites in part:

"determining an external viewing location that is associated with a greatest threat of an attack on the aircraft"

Herlik discloses a method and structure for aerial fire fighting. It does not deal with threats to an aircraft, and accordingly there is no disclosure of "determining" as recited above.

Claims depending from claim 1 contain this same limitation.

Claim 22 recites in part:

"wherein the dispensing location is on an engine nacelle of the aircraft forward of an aft end of an engine contained within the nacelle, or on a wing of the aircraft, or on a fuselage of the aircraft just ahead of an auxiliary power unit."

The dispensing location of the aerial firefighting fluid from the aircraft in Herlik is from the very aft end of the fuselage, at locations indicated as 9 in Figure 3 (col. 8, lines 41-44). It is not from any location set forth in the above-quoted recitation from

- 11 -

claim 22.

Claims depending from claim 22 contain this same limitation.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 1, 2, 4, 6, 11, 14, 16, 22, 23, 24, and 26 are rejected under 35 USC 102 over US Patent 4,979,571 to MacDonald. Applicant traverses this ground of rejection of the amended claims.

Claim 1 recites in part:

"determining an external viewing location that is associated with a greatest threat of an attack on the aircraft"

MacDonald depicts in Figure 4 a firefighting or chemical-spills control helicopter. A foam mixture is sprayed out of the front-mounted and generally forward-facing nozzle 66. There is no action taken to determine an external viewing location that is associated with a greatest threat of an attack on the aircraft.

Claims depending from claim 1 contain this same limitation.

Claim 22 recites in part:

"the dispensing location is on an engine nacelle of the aircraft forward of an aft end of an engine contained within the nacelle, or on a wing of the aircraft, or on a fuselage of the aircraft just ahead of an auxiliary power unit"

The dispensing location of the foam from the helicopter in MacDonald is from the forward-mounted and forward-facing nozzle 66, see Figure 4 and the. It is not from any location set forth in the above-quoted recitation from claim 22.

Claims depending from claim 22 contain this same limitation.

BEST AVAILABLE COPY

- 12 -

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 1, 2, 4, 6, 8, 11, 12, 14, 15, 17, 18, 19, 20, 22, 23, 24, and 25 are rejected under 35 USC 102 as anticipated by "Space Shuttle" and the supporting documents cited herein. Applicant traverses this ground of rejection of the amended claims.

Applicant requests clarification of the rejection if it is maintained. A sec. 102 rejection must be based on the disclosure contained within a single reference. Applicant is not certain what reference is intended to be described as "Space Shuttle". Is it the photographs that are pages 8-11 of the Office Action (if so, their source should be identified), or is it one or more of the references U-X on PTO-892, or something else. By seeking this clarification, Applicant is not denying that the space shuttle exists as prior art, but instead wishes the basis of the rejection to be clear.

Claim 1 recites in part:

"determining an external viewing location that is associated with a greatest threat of an attack on the aircraft;"

Space Shuttle discloses an earth-launched space vehicle. It does not deal with threats of an attack to the space shuttle, and accordingly there is no disclosure of the "determining" step as recited above.

Claims depending from claim 1 contain this same limitation.

Claim 17 recites in part:

"the dispensing location is on an engine nacelle of the aircraft forward of an aft end of an engine contained within the nacelle, or on a wing of the aircraft".

The dispensing location of the exhaust from the space shuttle engines is from the

- 13 -

aft end of the aft-mounted main engines or from the aft end of the side-mounted SRBs. It is not from any location set forth in the above-quoted recitation from claim 22. Claims depending from claim 17 contain this same limitation.

Claims 22 recites in part:

"the dispensing location is on an engine nacelle of the aircraft forward of an aft end of an engine contained within the nacelle, or on a wing of the aircraft, or on a fuselage of the aircraft just ahead of an auxiliary power unit".

The dispensing location of the exhaust from the space shuttle engines is from the aft end of the aft-mounted main engines or from the aft end of the side-mounted SRBs. It is not from any location set forth in the above-quoted recitation from claim 22.

Claims depending from claim 22 contain this same limitation.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Applicant submits that the application is now in condition for allowance, and requests such allowance.

Respectfully submitted,



William Schubert

Reg. No. 30,102

Attorney for Applicant